

NEXT GENERATION AUDIO

Next Generation Audio (NGA) is among the most important developments in broadcast technology since the introduction of colour television. It encompasses several approaches, including channel-based, scene-based and object-based audio (OBA), enabling author-once, deliver-anywhere production and a personalized audio experience for the listener.

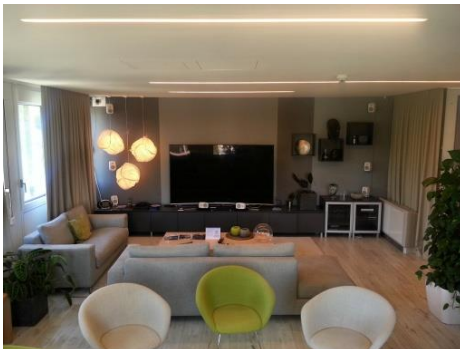
BACKGROUND

Developments in television, spanning SDTV, HDTV and UHD together with HDR and HFR, have improved picture quality, but they are “only” more of the same: more pixels, more colours, more brightness, better speed rendition. NGA, on the other hand, adds totally new user experiences of immersion and personalization. NGA even provides a solution to one of the oldest and most common complaints received by broadcasters all over the world: inaudibility of the dialogue or commentary. NGA can effectively allow its audience to re-author the audio experience to suit its tastes or accessibility needs. The key to this added value is user access to the metadata that describes all the audio content – known as audio objects – in the programme.

NGA steps away from the “hardwired” mono, stereo, 5.1, 7.1, 10.1 or 22.2 speaker channels that programmes are traditionally authored for. The technical metadata generated alongside the audio content and delivered to the end user enables unparalleled flexibility of user choice.

THE CHALLENGE FOR PUBLIC SERVICE MEDIA

PSM organizations, having relied on traditional linear broadcasting for decades, today compete for attention alongside the likes of Google, Facebook, Netflix and other internet-based providers to make content available on a large selection of replay platforms.



EBU HQ's Digital Living Room – equipped for NGA reproduction



Radio France experimental immersive audio rig

Audiences already enjoy the immersive benefits of NGA in the form of Dolby Atmos, MPEG-H, DTS:X and other vendor-specific formats in the cinema, on Blu-ray, in gaming and extended reality environments. However, PSM will most likely leverage the other benefits of NGA such as the choice of alternate commentaries and the possibility of increasing or decreasing various elements in the audio mix.

PSM will also take advantage of the ability to deliver any individual programme to anything from a mono kitchen radio, through headphone listening in immersive sound, up to the full home theatre experience on a multitude of loudspeakers or a sound bar.

WHAT IS THE EBU DOING?

For NGA to work seamlessly in the expected broadcasting environment of multi-vendor systems (both known and unknown to the content producer) the audio must be labelled with metadata that conforms to a known standard – preferably an open standard. Furthermore, the audio must be authored (rendered) in a known fashion so that the content producer may be reassured that the audience will be able to reproduce the programme through an identical rendering engine in the receiving device. This is especially important for programmes exchanged across a group of dozens of national broadcasters.



BBC NGA monitoring room with FAME Audio group

The EBU's Audio Systems strategic programme is working alongside standards bodies (such as the ITU, AES, SMPTE, FAME and ETSI) to achieve the necessary open standards to allow broadcaster assimilation of NGA.

The **Audio Definition Model (ADM)** started life as EBU Tech 3364 and it has been adopted by the ITU and developed into the international metadata standard ITU-R BS.2076.

Most recently the EBU has published EBU Tech 3388, the specification of its own production renderer that operates directly with ADM metadata. This **EBU ADM Renderer (EAR)** has been submitted to the ITU for inclusion in its definition of audio renderers that will be the final link in the chain to enable NGA end-to-end in production, distribution and consumption scenarios.

EBU Technical Report TR 042 describes an example of an end-to-end NGA broadcast architecture and workflow based on the work of the ORPHEUS Project. EBU publications in development as of September 2018 are centred on the subjective test methodologies that will be needed to assess the performance of NGA.

FIND OUT MORE

Strategic Programme: Audio Systems

<https://tech.ebu.ch/as>